DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 73.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-007691
Date Inspected: 25-Jun-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: HoChang, Korea

OSM Arrival Time: 800
OSM Departure Time: 1800
Location: Unyang/Changwon, Kore

CWI Name: Sang Ho Kwak

Inspected CWI report:	☐ Yes	☐ No	☑ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Pier E2 bearing and Shear key

Summary of Items Observed:

The following report is based on METS observations at HoChang Machinery Industries (HCMI). Current work: Casting, forging and machining.

On this date the Caltrans Quality Assurance (QA) inspector, Dong J. Shin arrived at HoChang Machinery Industries (HCMI) located at Unyang, Korea and DooSan Heavy Industries(DHIC) located at Changwon, Korea. The Purpose of this trip was to observe quality control during fabrication and process of following items.

DHIC NDT technician Mr. JH. Lim (UT) and Mr. HS. Cho performed final UT on B3-02(Solid Shaft), B4-02(Solid Shaft) And B4-07(Bearing Bottom Housing). QA inspector checked following items prior to testing:
UT: Calibration date and DAC Curve, transducer size and frequency.
Transducer Used: Straight beam: Dia. 24mm, 2MHz, Angle Beam: 20 x 22mm, 1MHz, 45º.
Dual element straight beam: 6 x 20mm, 4MHz.
Miniature angle beam: 8 x 9mm, 2MHz, 45º.

Forging

1. Bearing Bottom Housing (B1-07/F07302-010): Transfer to KPC for final machining.
2. Bearing Bottom Housing (B2-07/F07302-020): Transfer to KPC for final machining.
3. Bearing Bottom Housing (B3-07/F07302-030): Transfer to KPC for final machining.
4. Bearing Bottom Housing (B4-07/F07302-040): Completed final UT.
5. Spherical Ring (S1-07/F07302-050): Transfer to KPC for final machining.

6. Spherical Ring (S2-07/F07302-060): Transfer to KPC for final machining.
7. Spherical Ring (S3-07/F07302-070): Transfer to KPC for final machining.
8. Spherical Ring (S4-07/F07302-080): Transfer to KPC for final machining.
9. Solid Shaft (B1-02/F07302-090): Transfer to KPC for final machining.
10. Solid Shaft (B2-02/F07302-100): Transfer to KPC for final machining.
11. Solid Shaft (B3-02/F07302-110): Completed final UT.
12. Solid Shaft (B4-02/F07302-120): Completed final UT.

• F number is DooSan Production Number.
• B number is drawing Number.

Casting

On this date DHIC continued repair welding on castings, QA inspector, HMIC QC
Inspector and DHIC QC inspector has checked welding parameters prior start repair welding.
Welding process utilized Flux Core Arc Welding (FCAW) with E81T1-K2, 1.6mm diameter Flux Core wire
Manufacture by SEAH-ESAB, Brand name Dual shield 1181-K2.
QA inspector checked welding parameters of 23-26 volts, 210-250 amps, travel speed 13-16 cm/min,
Gas flow 10-25l/min, preheat temperature over 100ºC and 24 hours maintaining preheat temperature.
All welding parameters comply with approved welding procedure specification No A-F-Z1Z1-219.

Welder: Mr. DJ. Kang welding on S4-03

DHIC NDT technician Mr. KS. Lee (UT) and Mr. SD. Lee performed final MT and UT on
S3-01(Stub), B3-06(Bearing top housing), B4-06(Bearing Top Housing) and S2-01(Stub).
QA inspector checked following items prior to testing:
MT: lifting power, pie gauge magnetic field strength, and calibration date.
UT: Calibration date, calibration date and DAC Curve, transducer size and frequency.
Transducer Used: Straight beam: Dia. 24mm, 2MHz.
Angle beam: 20 x 22mm, 2MHz, 45º.
Dual element straight beam: 6 x 20mm, 4MHz.
Miniature angle: 8 x 9mm, 2MHz, 45º.

1. Bearing Top Housing(B1-06, C07039-010): Continue to repair welding.
2. Bearing Top Housing(B2-06, C07039-020): Continue to repair welding.
3. Bearing Top Housing(B3-06, C07039-030): Completed Final UT.
4. Bearing Top Housing(B4-06, C07039-040):Continue to final UT.
5. Bearing Hold Down Assembly (B1-01-1, C07039-050): Completed Final UT.
6. Bearing Hold Down Assembly (B1-01-2, C07039-060): Completed Final UT.
7. Bearing Hold Down Assembly (B2-01-1, C07039-070): Completed Final UT.
8. Bearing Hold Down Assembly (B2-01-2, C07039-080): Completed final UT.
9. Bearing Hold Down Assembly (B3-01-1, C07039-170): Completed Final UT.
10. Bearing Hold Down Assembly (B3-01-2, C07039-180): Completed Final UT.
11. Bearing Hold Down Assembly (B4-01-1, C07039-190): Completed Final UT.

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

12. Bearing Hold Down Assembly (B4-01-2, C07039-200): Completed final UT.
13. Shear Key Stub(S1-01, C07039-090) : Completed PWHT.
14. Shear Key Stub(S2-01, C07039-100) : Start final NDT.
15. Shear Key Stub(S3-01, C07039-110) : Completed final UT.
16. Shear Key Stub(S4-01, C07039-120) : Continue to repair welding.
17. Shear key Housing(S1-03, C07039-130): Completed NDT after repair welding.
18. Shear key Housing(S2-03, C07039-140): Completed PWHT.
19. Shear key Housing(S3-03, C07039-150): Continue to repair welding.
20. Shear key Housing(S4-03, C07039-160): Continue to repair welding.

* S and B number is drawing number.
* C number is DSHI ID number.

Summary of Conversations:

*Discuss with Mr. S. H. Kwak regarding general project schedule.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Shin,DJ	Quality Assurance Inspector
Reviewed By:	Lanz,Joe	QA Reviewer